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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,579	08/13/2001	Zoran Petrovic	372155	7878
30955	7590	03/17/2008		
LATHROP & GAGE LC 4845 PEARL EAST CIRCLE SUITE 300 BOULDER, CO 80301			EXAMINER NILAND, PATRICK DENNIS	
			ART UNIT	PAPER NUMBER
			1796	
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			03/17/2008 PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/928,579

Applicant(s)

PETROVIC ET AL.

Examiner

Patrick D. Niland

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27, 29-70 and 72-92 is/are pending in the application.
- 4a) Of the above claim(s) 84-92 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27, 29-70, and 72-83 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

1. The amendment of 12/17/07 has been entered. Claims 1-27, 29-70, and 72-92 are pending. Claims 84-92 were and are withdrawn as being drawn to a non-elected invention. The restriction continues into the Request for Continued Examination since the RCE is required to be directed to the same invention and is not a new application.

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-27, 29-70, and 72-83 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No.

6686435. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claims encompass the instantly claimed invention by their use of the broad term filler which encompasses the aggregate of the instant claims. Furthermore, silica is used in the instant claims as the aggregate and is specifically claimed by the patentee (claim 3). The use of antifoam shows that the patentee removes entrained air from the mixture. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use vacuum to aid in the removal of bubble because it is well known to also use vacuum to remove entrained air and they are known to weaken the final product. The reaction of the patented claims falls within the scope of "cured" of the instant claims. The silica must be bonded to the polyurethane of the patentee since the reaction mixture of the patentee is that of the instant claims. The compositions of the prior art contain the same ingredients as those of the instant claims and therefore must also be "concrete" within the meaning of the term as it is used in the instant claims. There is no recited meaning of concrete such that this term distinguishes the patented composition from that of the instant claims. The patentee's claim clearly states "at least about a 2:1 weight ratio" of silica to the polyol which encompasses the instantly claimed amount of "aggregate composition". The portion of the patented specification argued is noted but the claim of the patentee is also part of the specification and the claimed range is all that the ordinary skilled artisan would need to enable using the instantly claimed amounts of aggregate.

For the reasons stated above, the instantly claimed invention is obvious over the patented claims and there is no showing that is commensurate in scope with the cited prior art and the instant claims of unexpected results. There is no probative evidence that the instant claims could not have been filed at the time the patented claims were filed. Silica is a species of the genus

aggregate of the instant claims and as such anticipates the instantly claimed aggregate. The polyurethane of the patented claims and the instant claims fall within the scope of each other. The patented claims require "at least about a 2:1 weight ratio" of silica to polyol of which the polyurethane is approximately the same amount as the polyol it is made with. 30 wt % polyurethane and 70 weight percent aggregate is 2.3:1 aggregate to polyurethane which is "at least about a 2:1 weight ratio" due to the recitation of "about" in the patented claims. The instant claims are thus obvious over those of the patent because the instantly claimed language falls within the scope of that of the patentee. There is not a showing of unexpected results for any range within a range of the instant fact situation. The filled polyurethane claims of the patentee are not limited to electrical components and encompass all other compounds as they recite "comprising" and "filler" (patented claim 3). It is not seen that pea gravel nor any other filler of the instant claims are excluded from insulators as polymer filled with such a filler would necessarily be insulating and hard as is required of many such insulators, e.g. the ceramic insulators of high tension connections. "Concrete" of the instant claims is not seen as giving any further meaning to the instant claims than the recited ingredients which follow after "comprising". Molding such "concrete" into electroinsulators is not excluded by "concrete". Arguments over the limited examples of the patentee are not persuasive as the patent is not required to be a blue print of the invention and is not even required to have examples. There is no evidence that "concrete" is different in kind than the electrical insulators of the patentee. Furthermore, the composition claims are not limited to insulators and are no different than the instant claims in that the patented claims encompass the instant claims and as such are not non-

analogous art as both relate to mixtures of polyurethane and aggregate. The proper comparison is not with traditional cement and limestone but with the compositions of the patentee.

Many of the instant claims do not require the instantly claimed crosslinker to be different from the vegetable oil polyol, except the molecular weight limitation, and the polyol of the patentee contains some amount of tri or higher functional polyol which will crosslink the polyurethane of the patented claims and which falls within the scope of the “low molecular weight polyol” crosslinker of the instant claims based on the definition of average molecular weight and degree of polymerization. It is not seen that this molecular weight fraction is not glycerine nor that there is not some fraction of the vegetable based polyol that has the instantly claimed low molecular weight polyol characteristics, particularly considering the concepts of average molecular weight and degree of polymerization. Polymerizations are well known to give molecules of various molecular weights as evidenced by the concept of average molecular weight in polymer chemistry. The applicant’s arguments therefore do not apply to these claims. There is no probative evidence that the prior art polyol does not contain the instantly claimed amount of low molecular weight polyol. It is noted that many of the claims do not require the low molecular weight polyol any longer due to the recitation of 0%, such as claim 1. The instant claims 1-27, 29-38, and 51-83 no longer recite “effective for increasing” various claimed properties. It is noted that the components of the patentee encompass polyfunctional polyols and polyisocyanates (column 9, lines 34-57, column 10, lines 51-64 with “crosslinking” of line 63 being particularly noted) as the patentee’s claimed invention is defined by the enabling specification. Thus, the polyols and polyisocyanates with more than 2 functional groups give crosslinking and are therefore “crosslinkers”. It is noted that these polyfunctional compounds

are part of a mixture of compounds and therefore a portion can be thought of as polyol or polyNCO per se and the remainder as “crosslinker” per se. The crosslinking achieved by the patentee using either polyol and/or polyNCO of functionality greater than 2 will increase the molecular weight of the polymer via crosslinking by definition, make a three dimensional network of molecules by definition and a function of the reactants used, the presence of filler and the accompanying increase in molecular weight will necessarily and inherently give an increase in the claimed properties over the corresponding linear and unfilled polyurethanes of the patentee. Note the polymer textbook, i.e. well known, relationship of molecular weight to modulus. The increase in modulus is expected to give increased physical properties such as those claimed. Addition of hard filler is expected to increase the overall hardness of the compositions, e.g. one of the well known purposes of “filler”.

The polyol of the claims of the patentee is going to be a mixture of materials necessarily by definitions of “degree of polymerization” and the average concepts in polymers such as “average molecular weight” and “average functionality”. As such there will be different molecules in the mixtures resulting from making the polyol of the patented claims. The lower molecular weight fraction such that the disclosure of page 19 of the instant specification discussed in the applicant’s arguments is met by definition of average molecular weight regarding such polymeric moieties falls within the scope of the low molecular weight polyol as well as any residual polyols such as glycerine from the reactions involved in making the patentee’s claimed polyols falls within the scope of the instant claims which recite no amounts of the low molecular weight polyols. It is expected that the reactions to give the vegetable oil based polyol of the patented claims, such as hydroxylation and epoxidation of the oils of the patented

claims, coupled with the fact that polymerizations never proceed to completion will leave residual glycerine, in the relatively broad instantly claimed amounts, in the reaction used to form the vegetable oil based polyols of the patented claims from removal of the fatty acids from the glycerine in the di and triglycerides inherent in such oils when these compounds are treated with the reactants and reaction conditions of the patentee. No evidence to the contrary is seen.

The newly amended claims encompass 0% of the low molecular weight polyol. The argued polyol is therefore not required by those claims not requiring a non-zero amount of the argued low molecular weight polyol. Furthermore, no unexpected results commensurate in scope with the instant claims and the cited prior art are seen. The argument that the examiner fails to show that the reference has a teaching of the instantly claimed half molecular weight limitation ignores the above arguments relating to degree of polymerization and average molecular weight. The PTO has no experimental facilities to make tests. The burden is on the applicant to show that the patentee's claimed polyols do not necessarily and inherently contain the instantly claimed low molecular weight polyols in the instantly claimed amounts by virtue of the fact that such polymerizations are expected to contain monomeric moieties since degrees of polymerization are never 100% and low molecular weight fraction by definition of viscosity average molecular weight. Also, the newly amended claims encompass 0% of the low molecular weight polyol in many instances. Ranges of molecular weights are well supported in basic polymer texts and by the well known concept of "average molecular weight" in polymers. The examiner does not have possession of the invention of the patentee, as does the applicant. Again, the burden is on the applicant to make experimental showings, which is the only means to determine the molecular weight distribution of the claimed polyol. It is unclear what is meant by the relative

term "very narrow". This is not evidence that monomeric polyol does not remain, which would be contradictory to the physics of such reactions, e.g. degree of polymerization is never 100%. It is not improper for the examiner to shift the burden to the applicant in this inherency situation. See MPEP 2112.

The compositions of the instant claims are obvious over those of the patented claims for the reasons stated above and this rejection is maintained.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-7, 9-11, 13-16, 20-27, 35-52, 54-60, 63, 67-70, 72-74, 78-81, and 83 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 2902388 Szukiewicz.

The patentee discloses polyurethane cement falling within the scope of the instant claims at page 1, column 1, lines 20-71, particularly 35-46 which encompasses the instantly claimed amount of aggregate where the hydraulic cement is the aggregate and the instantly claimed low molecular weight polyol crosslinker based on the definition of average molecular weight and degree of polymerization as the polyol mixture disclosed here will necessarily have polyols falling within the scope of the instantly claimed low molecular weight polyol by definition of these terms. It is also not seen that such polyols are removed from the reaction mixture of the

patentee. It is also noted that many of the instant claims now read on 0% of the lower molecular weight polyol. See page 1, column 2, lines 1-71, particularly 1-25 and 40-50 of which soya, tung and linseed are mentioned in the instant claims; column 3, lines 1-75, particularly 8-10 and 36-45; column 4, lines 1-75, particularly 1-4, 39-42, and 61-68; and the remainder of the document. The limitations of claims 9-11 and 13-14 and related claims would appear to be encompassed by the polyol molecular weights, the relationship of viscosity to molecular weight via "viscosity average molecular weight" and chemistries of the patentee. No evidence to the contrary is given. See MPEP 2112. The fillers of claims 20-27 and other related claims appear to be those necessarily in hydraulic cement of the patentee as encompassed by "Portland cement" of the patentee's example 3. Column 5, lines 66-73 shows that the free NCO groups will react with ambient moisture during cure to give foaming of the instant claim 84. The polyol of the patentee contains the instantly claimed amount of low molecular weight polyols. See column 4, lines 2-4 for example. The disclosed oils of column 2, lines 42-50 are known to be mixtures of glycerides, of which any small amount of polyols thereof can be said to be the low molecular weight polyols of the instant claims. The claims do not require the low molecular weight polyol to have half the molecular weight of the vegetable oil based polyol. It is not seen that some small amount of the remainder of the glyceride mixture of the patentee is not glycerine in the amounts of the instant claims, which is expected since glycerine is a metabolite of the things that make the glycerides and will result from hydrolysis of the glycerides which occurs naturally. No probative evidence to the contrary is seen. The patentee's range of 300-2300 for the molecular weight of the polyol indicates the instantly claimed molecular weight limitation of the low molecular weight polyol of

the instant claims as does the polymer concept of average molecular weight. No probative evidence to the contrary is seen. See MPEP 2112. This rejection is maintained therefore.

7. Claims 1-7, 9-11, 13-16, 20-27, 35-60, 63, 67-70, 72-74, and 78-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat. No. 2902388 Szukiewicz. The patentee discloses polyurethane cement falling within the scope of the instant claims at page 1, column 1, lines 20-71, particularly 35-46 which encompasses the instantly claimed amount of aggregate where the hydraulic cement is the aggregate and the instantly claimed low molecular weight polyol crosslinker based on the definition of average molecular weight and degree of polymerization as the polyol mixture disclosed here will necessarily have polyols falling within the scope of the instantly claimed low molecular weight polyol by definition of these terms. It is also not seen that such polyols are removed from the reaction mixture of the patentee. It is also noted that many of the instant claims now read on 0% of the lower molecular weight polyol. See page 1, column 2, lines 1-71, particularly 1-25 and 40-50 of which soya, tung and linseed are mentioned in the instant claims; column 3, lines 1-75, particularly 8-10 and 36-45; column 4, lines 1-75, particularly 1-4, 39-42, and 61-68; and the remainder of the document. The limitations of claims 9-11 and 13-14 and related claims would appear to be encompassed by the polyol molecular weights, the relationship of viscosity to molecular weight via "viscosity average molecular weight" and chemistries of the patentee. No evidence to the contrary is given. See MPEP 2112. The fillers of claims 20-27 and other related claims appear to be those necessarily in hydraulic cement of the patentee as encompassed by "Portland cement" of the patentee's example 3. Column 5, lines 66-73 shows that the free NCO groups will react with ambient moisture during cure to give foaming of the instant claim 84. The polyol of the patentee

contains the instantly claimed amount of low molecular weight polyols. See column 4, lines 2-4 for example. The disclosed oils of column 2, lines 42-50 are known to be mixtures of glycerides, of which any small amount of polyols thereof can be said to be the low molecular weight polyols of the instant claims. The claims do not require the low molecular weight polyol to have half the molecular weight of the vegetable oil based polyol. It is not seen that some small amount of the remainder of the glyceride mixture of the patentee is not glycerine in the amounts of the instant claims, which is expected since glycerine is a metabolite of the things that make the glycerides and will result from hydrolysis of the glycerides which occurs naturally. No probative evidence to the contrary is seen. The patentee's range of 300-2300 for the molecular weight of the polyol indicates the instantly claimed molecular weight limitation of the low molecular weight polyol of the instant claims as does the polymer concept of average molecular weight. No probative evidence to the contrary is seen. See MPEP 2112. This rejection is maintained therefore.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use the instantly claimed combinations of ingredients and amounts thereof mixed by the methods of the instant claims from the disclosure of the patentee because they would have been expected to give the properties described by the patentee and the instantly claimed inventions are broadly encompassed by the patentee such that the instantly claimed inventions would have been predictable to the ordinary skilled artisan from the disclosure of the patentee at the time of the instant invention given the high level of skill in the polyurethane art. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to subject the compositions of the patentee to vacuum to degas them so as to avoid the problems of bubbles

that cause them to be undesired as shown by column 5, lines 66-72 of the patentee and vacuum is a conventional means for degassing polymeric compositions.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick D. Niland whose telephone number is 571-272-1121. The examiner can normally be reached on Monday to Thursday from 10 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Patrick D Niland/
Primary Examiner
Art Unit 1796